mation and converts the text response to an audio signal in accordance with the call origination language.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The subject matter which is regarded as the invention is particularly pointed out and distinctly claimed in the claims at the conclusion of the specification. The foregoing and other objects, features, and advantages of the invention are apparent from the following detailed description taken in conjunction with the accompanying drawings in which:

[0015] FIG. **1** illustrates one example of a block diagram in accordance with the present invention for synthesizing responses using a MLTTS synthesizer in a call center system; and

[0016] FIG. **2** is a flowchart illustrating one method of the present invention shown in FIG. **1**.

[0017] The detailed description explains the preferred embodiments of the invention together with advantages and features, by way of example with reference to the drawings.

DETAILED DESCRIPTION OF THE INVENTION

[0018] Turning now to the drawings in greater detail, it will be seen that in FIG. **1** there is a block diagram depicting aspects of a runtime system to interactively synthesize responses to a caller using a multi-language text-to-speech (MLTTS) synthesizer. In the exemplary embodiments, the MLTTS is used in a call center environment and provides outbound audio to a caller in at least one of the same language and dialect as that of the caller.

[0019] FIG. **1** shows an exemplary call center configuration. The configuration of FIG. **1** is illustrative rather than limiting of the teachings herein.

[0020] As shown in FIG. **1**, a caller **100**, using either a wireless phone or a wired phone, places a call to a call center whose purpose is usually to distribute the telephone calls to available customer service representatives, referred to herein as "call handlers." The call center will distribute the incoming calls using any one of numerous well known automatic call distribution techniques to one node in the call center wherein the call is handled by a call handler in the call handler node **210**. In this particular embodiment, the invention shows the distribution of the calls occurring via a public switch telephone network (PSTN) **110**. This invention is not limited in this way, however, and applies as well as when other kinds of networks are employed, including voice-over-IP networks, cellular telephone networks, satellite networks, emergency networks, private corporation networks, and the like.

[0021] The PSTN **110** sends the input of the call into an Interactive Voice Response (IVR) platform **120**. The IVR platform **120** includes a database **121** and is capable of accepting a combination of voice telephone input and touch-tone keypad selection but is not limited to this combination. In one embodiment, the database **121** will include both area and world telephone codes of telephone numbers and the corresponding language associated with the area and world telephone codes. Information, including the caller's audio message, from the IVR platform **120** is sent to a media splitter **130**. The media splitter **130** is also capable of sending information back to the IVR platform **120** and then in turn to the caller **100** through the PSTN **110**. The media splitter **130** receives inbound calls from the PSTN **110** and sets up a connection with the inbound audio channel that has a telephone adapter **220** connected to a speaker **230** or headset so that the call handler can listen to the caller **100**. The media splitter **130** also routes the information to the call handler and simultaneously opens a Voice Extensible Markup Language (XML) browser **140** session. The Voice XML **140** receives its information from a workstation and graphical user interface (GUI) **240**. When the call handler receives a call, the call handler listens to the caller's **100** audio signal and replies to the caller **100** by typing the response to the caller **100** into a workstation with a graphical user interface (GUI) **240**. The output from the GUI **240** is used as input into the Voice XML browser **140**.

[0022] The Voice XML browser **140** receives information from the workstation with the GUI **240**, whereby the call handler, after listening to the incoming audio on a speaker **230**, responds to the caller **100** by entering a response message through the GUI at the workstation **240**. The Voice XML browser **140** sends and receives signals and information to a voice server **150**. The voice server **150** upon receiving the response message sends the response message to a text to speech (MLTTS) synthesizer **160**. The text to speech synthesizer **160** processes the response message in accordance with information received from the IVR platform **120** and database **121** and sends audio signals back to the caller **100** by routing the information through the media splitter **130** to the IVR platform **120** through the telephone network **110** to the caller **100**. In other words, the MLTTS synthesizer **160** synthesizes the outgoing audio so that the output is in the native language and accent of the caller **100** so that the outgoing voice sounds familiar to the caller **100**. The preferred method uses a very high quality synthesizer **160**, such as IBM Web Sphere Voice™ server, to synthesize responses to the caller's queries.

[0023] In an alternate embodiment, the database **121** sends the desired language response information directly to the MLTTS synthesizer **160**. With the above setup in place, a call handler **250** is able to interactively respond to a caller **100** via a speech synthesizer **160**. The IVR platform **120** is capable of providing the speech synthesizer **160** the information to select the correct language based on the incoming phone number and a corresponding database **121**. After initializing the appropriate MLTTS synthesizer **160** based on the incoming call (for example, a synthesizer for one of the United States, the United Kingdom, or other language) responses are provided to the caller **100** in the caller's language.

[0024] One example of the incoming phone number being mapped to a language could be as follows: 1 800 XXX XXX2—can be mapped to United States English whereas 1 800 XXX XXX3—can be mapped to United Kingdom English.

[0025] Referring to FIG. **2**, there is shown a flow diagram of one embodiment in accordance with FIG. **1**. One scenario is as follows. A caller places a call **300**. The network receives the call and distributes **310** the call to the IVR platform. The platform then determines and assigns a language based on the incoming caller's telephone number after looking up and matching the information in a database **320**. The IVR **120** sends the information and signal to the media splitter **130** so that the splitter can simultaneously initialize a Voice XML Browser **370** and rings a free call handler's extension **350** and assigns **340** the inbound audio to that extension. At this point, the call handler will see **360** a screen pop-up at a